IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Assignee ..... Micron Technology, Inc.
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Title: Wireless Communication Devices, Radio Frequency Identification Devices, Methods of Forming a Wireless Communication Device, and Methods of Forming a Radio Frequency Identification Device

BRIEF OF APPELLANT

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Appellant appeals from the final rejection, mailed February 17, 2004, of claims 50-52, 54-69, and 71-107. This brief is submitted in triplicate. The fee required under 37 C.F.R. § 1.17(c) was paid with the original Brief filed August 16, 2004 and no fee is believed due for filing this Brief. However, if a fee or fee deficiency is due, the Commissioner is authorized to charge the fee or deficiency to Deposit Account No. 23-0925.

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REAL PARTY IN INTEREST.

The real party in interest of this application is Micron Technology, Inc. as evidenced by the full assignment of the pending application to Micron Communications, Inc. recorded at Reel 8778, Frames 0014-0018 in the Assignment Branch of the Patent and Trademark Office and the Notice of Merger, merging Micron Communications, Inc. with and into Micron Technology, Inc. which is recorded at Reel 010381, Frames 0287-0299 in the Assignment Branch of the Patent and Trademark Office.

II. RELATED APPEALS AND INTERFERENCES.

Appellant, Appellant's undersigned legal representative, and the assignee of the pending application are aware of no appeals or interferences which will directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF THE CLAIMS.

Claims 50-52, 54-69, and 71-107 were finally rejected. Appellant submits an After Final amendment herewith to cancel claim 107. Claims 50-52, 54-69, and 71-107 are pending, stand finally rejected, and are being appealed.

IV. STATUS OF AMENDMENTS.

Appellant files an After Final amendment herewith pursuant to 37 C.F.R. §1.116 to cancel claim 107. Appellant requests cancellation of claim 107.

V. SUMMARY OF THE INVENTION.

The present invention relates to wireless communications devices, systems and methods. According to some inventive aspects, radio frequency identification device (RFID) communications are provided. In addition, wireless communications may occur at microwave frequencies, such as 2.45 GHz or others.

Details regarding an exemplary communication system 12 including an electronic communication device 10 and interrogator unit 14 are shown for example in Fig. 1. Devices 10 may be embodied in card configurations and may be used to implement identification functions of RFID in one embodiment. As set forth beginning at page 11, line 3, device 10 may communicate an identification signal responsive to the reception of a polling signal for example from interrogator unit 14. Device 10 may be referred to as a tag in some arrangements.

Exemplary components of but one possible arrangement of a communication device 10 are shown in Fig. 3. A conductive trace 30 is provided upon substrate 18 and forms desired electrical connections. In the illustrated exemplary configuration of Fig. 3, a first antenna 32 is shown for receiving signals and another antenna 34 is shown for transmitting signals. In another embodiment, antenna 34 is omitted and antenna 32 provides both transmission and reception of signals. As set forth beginning at page 5, line 10 of the originally-filed specification with respect to a discussion of Fig. 1, communications may be implemented at microwave frequencies. Further with respect to the described embodiment of Fig. 3, device 10 may be include transponder circuitry 64 comprising a modulator configured as a backscatter device as discussed starting at page 10, line 4 of the originally

filed specification. Arranged as a backscatter device, the modulator may reflect received signals as set forth on pages 10-11 of the originally-filed specification.

Referring to Fig. 4, an exemplary housing 27 of device 10 is shown. As set forth beginning at page 11, line 11 of the originally-filed specification, a resin encapsulant 44 may cover integrated circuit 54, power source 52, conductive circuitry 30 and a portion of a support surface of substrate 18. Together, the resin encapsulant 44 and substrate 18 may define a card-thin housing 27 of device 10 wherein the substrate 18 and encapsulant 44 provide opposing upper and lower surfaces of the device 10. In one embodiment, the housing 27 of device 10 has a length of about 3.375 inches, a width of about 2.125 inches and a thickness of less than or about 0.090 inches. The thickness of sides 41 is less than the lengths and widths of upper and lower surfaces 40, 42 in the above described embodiment. Referring to pages 12-13 of the specification, one or more of the sides 41 may include visibly perceptible information 43 which may include identification indicia.

The above-described resin 44 may include a flowable encapsulant in the embodiment set forth beginning at line 23 of page 11 of the specification. The encapsulant 44 may be flowed to encapsulate substrate 18 and subsequently cured following appropriate covering of integrated circuit 54, power source 52, conductive circuitry 30 and substrate 18. The curing of the encapsulant 44 forms a composite substrate or solid housing 27 which comprises substrate 18 and encapsulant 44.

VI. ISSUES.

A. Is the combination of the teachings of Walton and Drabeck in support of an obviousness rejection of claims 50-52, 54-58, 60, 62-69, 71-75, 79-98 and 101-106 proper?

B. Is the combination of the teachings of Odsgiri with the teachings of Walton and Drabeck in support of an obviousness rejection proper, and does the combined teachings disclose positively-recited limitations of claims 65, 84, 86, 88, 90, 92, 94, 96, and 98?

C. Does the combination of the teachings of Walton and Drabeck disclose the substrate and encapsulant limitations of claims 54-58, 65, 71-75, 80-81, 85-86, 93-94, and 103-106?

D. Is the rejection of claims 102-106 over the combination of the teachings of Walton, Drabeck and Sawada proper?

E. Is the combination of the teachings of MacLellan with the teachings of Walton proper in support of the rejection of claims 83, 85, 87, 89, 91, 93, 95, 97, 99, and 100?

F. Does the combination of Walton and Drabek disclose or suggest the claimed limitations of claim 101?

G. Does the combination of Walton, Drabeck and Sawada disclose or suggest the claimed limitations of claims 102-103?

H. Does the combination of Walton, Drabeck and Sawada disclose or suggest the claimed limitations of claim 104?

I. Does Walton teach the claimed limitations of claims 59, 61, 76, and 78?

J. Is the refusal of the Office to initial a submitted form PTO-1449 proper?

VII. GROUPING OF CLAIMS.

For each ground of rejection which Appellant contests herein which applies to more than one claim, such additional claims, to the extent separately identified and argued below, do not stand or fall together.

VIII. ARGUMENT.

For at least the reasons herein, reversal of the final rejections of claims 50-52, 54-69, and 71-106 is respectfully requested. For any one of the reasons presented herein, the rejections of the claims should be reversed. In combination, these reasons overwhelmingly support such reversal. Accordingly, Appellant respectfully requests that the Board reverse the rejections of claims 50-52, 54-69, and 71-106.

A. The combination of the teachings of Walton and Drabeck in support of the obviousness rejection of claims 50-52, 54-58, 62-69, 71-75, 79-98, and 101-106 is not proper.

The Office Action, paper number 20, mailed February 17, 2004 was made final (references hereafter to "the Office Action" without a specific date refer to paper number 20). Page 7 of the Office Action admits Walton fails to teach microwave signals. The Office thereafter relies upon the teachings of Drabek to support the obviousness rejection of the claims. Appellant respectfully submits that the combination of the Walton and Drabek references is improper for at least the following compelling reasons.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See, e.g., MPEP §2143 (8th ed.).

MPEP §2142 (8th ed., rev. 2) states that the concept of prima facie obviousness allocates who has the burden of going forward with production of evidence in each step of the examination process and the *examiner bears the initial burden of* ***factually*** *supporting any prima facie conclusion of obviousness.* MPEP §2143.01 (8th ed., rev. 2) cites *In re Lee*, 61 USPQ2d 1430 (Fed. Cir. 2002), regarding motivational rationale and the importance of relying upon ***objective evidence*** and ***making specific factual findings*** with respect to the motivation to combine references. The Office has failed to establish the requisite suggestive or motivational rationale and the 103 rejections based upon the combination of Walton and Drabek is improper for at least this reason.

Pages 7-8 of the Office Action present an alleged motivational rationale for combining the teachings of Drabek with the teachings of Walton. Initially, the Office states that Drabek teaches microwave signals for the purpose of providing efficient communication. Thereafter, the Office Action states that it would have been obvious to include wireless signals comprising microwave signals in the device of Walton because Walton suggests wireless signals and Drabek teaches wireless signals comprising microwave signals for the purpose of providing efficient communication. The alleged motivational rationale is conclusory subjective belief of the Examiner with no objective or

factual support in the art or otherwise, and in accordance with the MPEP and precedent of the Court of Appeals for the Federal Circuit, is improper to support a proper 103 rejection.

More specifically, the conclusory statement that Drabek teaches microwave signals for the purpose of providing efficient communication is not supported by the Drabek teachings. In fact, the Office has failed to cite any reference teachings in support of the subjective conclusory statement. Appellants have electronically searched Drabek and have only identified one reference to efficiency at col. 1, lines 25-30 and such reference clearly does not support the bald allegation asserted by the Office. The above-mentioned Drabek teachings merely state that operating an antenna at a specific impedance does improve downlink communications but does *not* result in a maximum cross-section of a wireless label needed for efficient backscattering. Drabek does not support the allegation that microwave signals provide efficient communication as alleged. Further, the record is devoid of any additional evidence to support the position of the Examiner.

Appellant submits that in accordance with the MPEP and *In re Lee*, the Office has failed to establish a proper motivational rationale for combining the reference teachings. The Court in *In re Lee* stated the factual inquiry whether to combine references must be through and searching, must be based on objective evidence of record and can not be resolved on subjective belief and unknown authority. *Id.* at 1433-1434. The Court also stated that deficiencies of cited references cannot be remedied by general conclusions about what is basic knowledge or common sense. *Id.* at 1434-1435. In the instant case, the record is entirely devoid of any evidence to support motivation to combine the teachings apart from the bald unsupported conclusory statements of the Examiner which

are insufficient for proper motivation as set forth by the Federal Circuit. The Office cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims but must set forth objective rationale on which it relied.

Initially, there is absolutely no evidence of record to support the subjective conclusory statement of the Examiner that the any efficiency in communications would result from applying teachings regarding microwave communications (i.e., Drabeck) to a system which is based upon inductive magnetic communications (i.e., Walton). There is no evidence of record that the disparate teachings of the microwave system of Drabek may be combined with the teachings of the inductive magnetic system of Walton to yield an operable communication system let alone one which yields improved efficiencies. As set forth by the MPEP and Federal Circuit, there is no motivation and the Office has failed to meet the burden of establishing a *prima facie* case of obviousness and accordingly the 103 rejection based upon the combination of the teachings of Drabek with the teachings of Walton is improper. The only motivation results from improper reliance upon Appellant's disclosure (i.e., the motivation for forming the combination must be something other than hindsight reconstruction based on using Appellant's invention as a road map for such a combination. *See, e.g., Interconnect Planning Corp. v. Feil*, 227 USPQ 543, 551 (Fed. Cir. 1985); *In re Mills*, 16 USPQ2d 1430 (Fed. Cir. 1990)).

Perhaps the failure of the Office to comply with the requirement of providing factual support of the motivation rationale results from the disparate teachings of the Walton and Drabek references. From the explicit teachings of Walton (e.g., Figs. 2-4), it is clear that such reference is directed towards an inductively coupled (magnetic) system while Drabek is directed towards a microwave system (e.g., Background of col. 1; col. 5, lines 25-40).

Appellant submitted evidence during prosecution that the inductively coupled magnetic systems and microwave systems are recognized in the art as entirely different systems in terms of communications technology as well as application. Pages 21-22 of the *RFID Handbook* submitted with Appellant's Response dated November 17, 2003 discuss the differences between inductive (magnetic) coupled systems such as Walton versus long range systems which communicate at microwave frequencies (e.g., 2.45 GHz as recognized in col. 5 of Drabek).

Inductive (magnetic) coupled systems and microwave systems fundamentally operate in different ways. Magnetic systems rely upon relatively low frequency flux (13.56 MHz used in Walton at col. 7, lines 20-25) while microwave systems communicate at microwave frequencies (2.45 GHz used in Drabek). There is absolutely no evidence of record that the disparate microwave teachings may be incorporated into a magnetic system or that one of skill in the art concerned with magnetic systems would look to microwave systems for meaningful communications teachings. Appellant submits that the modification proposed by the office would change the principle of operation of the magnetic system of Walton in order to incorporate microwave communications technology. As set forth in the MPEP and the predecessor of the Federal Circuit, "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." MPEP §2143.01 (8th ed., rev. 2) *citing In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) (reversing a rejection wherein the "suggested combination of references would require a ... change in the basic principle under which the construction was designed to operate.") 270 F.2d at 813, 123 USPQ at 352.

Magnetic and microwave systems are classified and recognized in the art as entirely different systems, and the Office has failed to present any factual support or evidence regarding the ability to modify a magnetic system using circuitry designed for microwave communications. There is no evidence of record that teachings of a microwave system are applicable to or may be utilized with a magnetic system. To the contrary, the disparate systems are described separately in terms of the principle of operation and application in the art as discussed in the *RFID Handbook*. Even if modification was possible, such modifications to the magnetic system of Walton would be significant to incorporate the microwave teachings of Drabek and with the result of changing the principle of operation of Walton from a magnetic system to a microwave system. As mentioned above, changing the principle of operation of Walton illustrates that the Office has failed to establish a *prima facie* case of obviousness. Further, despite the mandate of the MPEP, the Office has failed to provide any evidence or factual support regarding the requisite motivational rationale to combine the disparate reference teachings. This failure combined with the disparate communications technologies of Walton and Drabek illustrates the improper rejection of the claims over the teachings of Walton modified by the teachings of Drabek. For at least these reasons, Appellant respectfully requests reversal of the 103 rejections based upon a combination of the teachings of Walton and Drabek.

B. **The combination of the teachings of Odsgiri with the teachings of Walton and Drabeck in support of an obviousness rejection is not proper, and even if combined, the combined teachings do not disclose positively-recited limitations of claims 65, 84, 86, 88, 90, 92, 94, 96, and 98.**

It is set forth in the Office Action (e.g., page 12) that the combination of Walton and Drabeck fail to disclose a battery. Thereafter, the Office relies upon the teachings of Odsgiri to cure the deficiencies of Walton and Drabeck. The reliance is misplaced.

It is stated on page 12 of the Office Action that the combination is appropriate apparently for the purpose of providing an additional power supply. The rejection and reasoning is nonsensical. Walton is directed towards an inductively coupled system to derive energy from the received magnetic flux as set forth in col. 7, line 60 - col. 8, line 3. There is no suggestion for an additional power supply except from improper reliance upon Appellant's disclosure. The Examiner fails to point to any teachings in the art that one of skill in the art concerned with an inductively coupled system of Walton would look to combine a battery for "providing additional power supply" as alleged in the Action. In view of the above authority, the conclusory statements of the Examiner are insufficient motivational rationale to support a proper combination of the Odsgiri teachings with Walton and Drabeck. More specifically, the Office Action provides no evidence or factual support of why one of skill in the art concerned with an inductive (magnetic) coupled system would look to teachings regarding an auxiliary power source. Walton is a passive system deriving power for communications from the received flux and there is no teaching or suggestion to combine the battery teachings with a passive arrangement. There is no evidence that

the system of Walton fails to operate for its intended purpose or is deficient with respect to its disclosed passive operations relying upon magnetic flux from the other communicating device. The Office has not pointed to any need or reasoning why one concerned with a passive system would look for teachings directed to an additional power supply.

The Examiner states that Odsgiri discloses an RFID system and recites teachings regarding "the power source enough to run motor within wireless environment" as set forth on page 12 of the Action in support of the rejection. Initially, Appellant submits that Odsgiri is directed towards pagers and portable telephones as set forth in col. 1, lines 12-17 and not RFID systems as baldly alleged in the Office Action. Col. 6, lines 32-51 of Odsgiri discuss using power with the particular application of attaching or implementing a vibrating assembly in a pager or telephone. Appellant submits the teachings regarding a power source enough to "run motor within wireless environment" fail to provide any motivation to combine the disparate reference teachings of Odsgiri with the identification systems of Walton or Drabeck. There is no evidence of record that one of skill in the art would look to provide a vibrating assembly (typically used systems to alert individuals of an incoming call) or otherwise be motivated look to power a motor within an inductive (magnetic) coupled passive identification system. There is no evidence of record that one of skill in the art would look to provide an additional auxiliary power supply in the tag arrangements of Walton and would not do so in view of increased cost, complexity, and size. There is no evidence of record that the teachings of Walton and Drabeck would otherwise have power concerns given the already disclosed passive power configurations of the references, or that the power systems of Walton and Drabeck are deficient in any regard

or would benefit from an additional power supply. To the contrary, Walton at cols. 7-8 identified above already discloses a specific, suitable arrangement. The alleged motivational rationale is nonsensical in view of the references being modified already providing operable power sources and not having concerns to power a motor as baldly alleged by the Office. For at least the above mentioned reasons, the Office has failed to present any motivational rationale required for a proper *prima facie* obviousness rejection of the respective claims and the 103 rejection is improper.

In addition, the rejected claims define the battery coupled with radio frequency identification device (RFID) circuitry, communication circuitry, or backscatter communication circuitry. The Office has failed to present any reasoning as to how supplying power to a motor as disclosed by Odsgiri may be fairly considered to support a rejection of claims reciting a battery coupled with a form of communication circuitry. Accordingly, even if the prior art references are combined, the combination fails to disclose or suggest positively-recited limitations of claims 65, 84, 86, 88, 90, 92, 94, 96, and 98.

C. **The combination of the teachings of Walton and Drabeck fail to disclose or suggest the substrate and encapsulant limitations of claims 54-58, 65, 71-75, 80-81, 85-86, 93-94, and 103-106.**

Claims 54-58, 65, 71-75, 80-81, 85-86, 93-94, and 103-106 define in various forms a substrate and an encapsulant. The Examiner baldly relies upon the teachings of col. 6, lines 1-53 of Walton as allegedly teaching the claimed substrate and encapsulant with no identification of the Walton teachings relied upon as disclosing the substrate and those relied upon as disclosing the encapsulant. In col. 6, lines 44-53 of Walton it is stated that

the assembly is encapsulated in a plastic rectangular bar 610. The plastic rectangular bar fails to disclose or suggest the claimed substrate having the support surface and also the encapsulant as claimed. The Office fails to reveal the specific structure of Walton relied upon as allegedly disclosing the claimed substrate and the encapsulant. Limitations of the above-recited claims are not shown nor suggested by the combination of reference teachings and the Office has failed to establish a proper *prima facie* obviousness rejection for at least this reason. Appellant respectfully requests allowance of the respective claims for at least this additional reason.

D. **The rejection of claims 102-106 over the combination of the teachings of Walton, Drabeck and Sawada is not proper.**

Initially, there is no motivation to combine the teachings of Sawada with the combination of Walton and Drabeck. The Office Action states on page 10 that the combination is appropriate "for the purpose of providing a ruggedized device." Appellant respectfully submits the alleged motivational rationale to support the combination of Sawada is deficient.

More specifically, Appellant has electronically searched Sawada and has failed to uncover any teachings regarding a ruggedized device. The prior art is also deficient as to how using different materials of a substrate and an encapsulant is supposed to result in a ruggedized device. In consideration of the deficiencies of the art with respect to supporting the motivational rationale presented in the Action, it follows that the alleged rationale only improperly results form the personal knowledge of the Examiner. Regardless of the source of the alleged motivational rationale (none presented except for

the subjective belief of the Examiner), it is clear the record is devoid of any evidence or factual support of the rationale. The record is devoid of explaining why different materials would provide a ruggedized device whereas the same structure using two of the same materials would not. Further, Walton already provides specific teachings regarding housing of internal circuitry. There is no evidence of record that the disclosed housing of Walton is deficient with respect to being rugged or that the housing of Walton would be made more rugged by the proposed combination.

Finally, Appellant notes that Sawada is directed towards encapsulation of semiconductor component such as a semiconductor die and is not directed to wireless communications. Appellant submits that one of skill in the art concerned with issues regarding providing a device capable of implementing wireless communications would not look to semiconductor device art which is not concerned with wireless communications for meaningful housing teachings. Semiconductor device fabrication art is not concerned with impacts of the structure with respect to the ability to receive or transmit radio frequency energy. There is no motivation to combine the teachings of Sawada and the Office has failed to present a proper *prima facie* obviousness rejection of the respective claims. Claims 102-106 are allowable for at least this reason.

E. **The combination of the teachings of MacLellan with the teachings of Walton is not proper in support of the rejection of claims 83, 85, 87, 89, 91, 93, 95, 97, 99, and 100.**

Claims 83, 85, 87, 89, 91, 93, 95, 97, 99, and 100 recite in varied forms limitations with respect to backscatter communications. On pages 16-17 of the Action, the Office

states that Walton fails to teach backscatter communications and thereafter relies upon the teachings of MacLellan as teaching backscattering in combination with Walton in support of the rejection. The rejection is improper.

Initially, there is no motivation to combine the disparate reference teachings of MacLellan with the teachings of Walton. As mentioned above, Walton is directed towards an inductive (magnetic) coupled system. As set forth in col. 5, lines 35-32, MacLellan is directed towards a microwave system. The Office Action and the prior art are devoid of any teaching or suggestion of implementing backscatter communications in an inductive (magnetic) coupled system. In fact, reflective properties of objects necessary for communications generally increase with increasing frequency including implementation at frequency ranges at 915 MHz or higher indicating that backscattering would be inapplicable to the magnetic flux coupling of Walton at relatively low frequencies of 13 MHZ. The Office has failed to present any factual support or evidence regarding the combining or applicability of backscattering techniques to inductive (magnetic) systems despite Appellant's response to Office Action mailed November 17, 2003 stating that the there is no teaching in the art of such a combination. Further, there is absolutely no evidence or factual support ***anywhere*** that backscattering may be successfully implemented in an inductive (magnetic) coupled system. Accordingly, there is no motivation to combine the backscattering techniques applicable in a microwave system (i.e., MacLellan) to an inductive (magnetic) system (i.e., Walton). The conclusory subjective statements of the Examiner on pages 16-17 that the combination is appropriate "to better comply with the FCC regulatory requirement" is not factually supported by evidence in the record but is merely based upon conclusions of the Examiner which are insufficient to establish a *prima*

facie obviousness rejection. The combination is improper and the respective claims are allowable for at least this reason.

Not only is there no motivation, there is no indication in the art or otherwise that there exists a reasonable expectation of success of implementing backscattering techniques in an inductive (magnetic) coupled (i.e., relatively low frequency) system of Walton. The Office has failed to comply with this second requirement of establishing a *prima facie* 103 rejection and the above-mentioned claims are allowable for at least this additional reason.

F. **The combination of Walton and Drabek fails to teach limitations of claim 101.**

Claim 101 recites the wireless communication device of claim 50 further comprising a *transmit antenna* configured to transmit microwave signals and a *receive* antenna configured to receive microwave signals. The Office Action on page 9 recites teachings of Drabek relied upon in support of the rejection of claim 101. However, the Office relies upon the teachings of a single antenna 102 as allegedly disclosing the plural transmit and receive antennas positively defined in claim 101. The single dipole antenna 102 fails to disclose both the dedicated transmit antenna and the dedicated receive antenna defined in claim 101, and accordingly, even if the teachings of Drabeck are combined with the teachings of Walton, the combination fails to disclose or suggest limitations of claim 101. Claim 101 is allowable for at least this reason.

G. **The combination of Walton, Drabeck and Sawada fails to disclose or suggest the claimed limitations of claims 102-103.**

The reliance by the Office upon the teachings of Sawada to cure the deficiencies of Walton and Drabeck with respect to the limitations of claims 102-103 is misplaced. For example, even if the disparate teachings of the three references are combined, the combination fails to disclose or suggest limitations of claims 102-103. The Sawada teachings identified by the Office fail to disclose *a substrate and encapsulant as comprising different materials* as positively claimed. Sawada merely discloses in col. 9, lines 35-45 and col. 10, lines 1-2 that the chip may be mounted on the substrate with no teaching or suggestion of the substrate comprising a different material than an encapsulant. In fact, Sawada is devoid of any details regarding the material composition of the substrate. Accordingly, even if the reference teachings of Sawada are combined, the combination fails to disclose or suggest positively recited limitations of claims 102-103 and such claims are allowable for at least this reason.

Further, with respect to claim 102, such claim positively recites that the *encapsulant and the substrate encapsulate an entirety of the communication circuitry and the antenna*. Contrary to 37 C.F.R. §1.104, the Office has failed to identify any teachings of record which disclose any encapsulation of an entirety of an antenna let alone the claimed encapsulation using the encapsulant and the substrate. Appellant submits that even if the three references are combined, the combination fails to disclose the claimed encapsulation. For example, Fig. 6 of Walton discloses an *outwardly exposed magnetic antenna rod 216* which is not entirely encapsulated as claimed. Drabeck fails to disclose or suggest teachings regarding encapsulation of an entirety of an antenna as claimed and Appellant

has electronically searched and failed to uncover any antenna teachings in Sawada. Accordingly, the prior art is devoid of disclosing or suggesting positively-recited limitations of claim 102 and claim 102 is allowable for this additional reason.

H. **The combination of Walton, Drabeck and Sawada fails to disclose or suggest the claimed limitations of claim 104.**

Claim 104 recites that the *substrate* and the *encapsulant* form a *solid mass substantially free of any void space*. The Office on page 10 states that the combination of Walton and Drabeck does not disclose limitations of claim 104 and thereafter relies upon teachings of Sawada. The rejection over the three references is improper. For example, even if the teachings of the references are combined, the combination fails to disclose or suggest the claimed substrate and encapsulant forming a solid mass substantially free of any void space as defined. The Office cites teachings in col. 2, lines 34-42 of Sawada in support of the rejection and as allegedly teaching that Sawada discloses the solid mass substantially free of any void space. However, the identified teachings merely disclose that convex portions of the encapsulating member contact with the surface of the active element of the chip and pressing the encapsulating member to encapsulate the chip. Appellant submits that in no fair interpretation may the mere encapsulation as described in Sawada be construed to fairly disclose a *solid mass substantially free of void space* as claimed. Encapsulation may occur without forming a resultant solid device. Accordingly, even if the prior art reference teachings are combined, the combination fails to disclose or suggest positively recited limitations of claim 104 and claim 104 is allowable for at least this additional reason.

I. **Walton fails to teach limitations of claims 59, 61, 76, and 78.**

Claims 59, 61, 76 and 78 recite in varying form communication circuitry in combination with an encapsulant configured to encapsulate and contact at least a portion of the communication circuitry or which contacts at least an encapsulated portion of the communication circuitry. The Office Action at page 4 identifies radio frequency identifier circuit 212 as allegedly disclosing the claimed communication circuitry. Thereafter, the Action identifies the plastic rectangular bar 610 as allegedly disclosing the claimed encapsulant. The teachings of Walton fail to disclose or suggest limitations of independent claim 59 or independent claim 76.

At page 4 of the Action, the Examiner referring to col. 6, lines 44-53 of Walton states that an "assembly" is encapsulated in a plastic rectangular bar 610 as set forth in lines 45-47 of Walton. However, col. 6, lines 44-53 of Walton relied upon by the Examiner fails to include any teaching of *bar 610 contacting identifier circuit 212* or any other circuitry which may be fairly considered to disclose Appellant's communication circuitry. On pages 2-3 of the Office Action, the Examiner appears to rely upon the teachings of antenna rod 216 in support of the rejections of independent claims 59 and 76. The Examiner baldly states on page 3 of the Action that rod portion 216 is "encapsulated or contacted." However, the Examiner fails to identify, contrary to the requirements of 37 C.F.R. §1.104(c)(2), any teachings of the prior art which support the allegation that circuit 212 or rod 216 or any other circuitry considered to teach the claimed communication circuitry is contacted by an encapsulant. Walton is void of any teaching to support the bald allegation of the Examiner set forth on pages 2-3 of the Action or the rejection of independent claims 59 and 76. In particular, Walton is void of any disclosure of the bar 610 contacting communication

circuitry.

Still referring to the anticipation rejection of independent claims 59 and 76, Appellant notes the requirements of MPEP §2131 (8th ed., rev. 2), which states that TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM. This MPEP section further states that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Appellant has electronically searched Walton and has failed to uncover any teachings of an encapsulant contacting commination circuitry as claimed. There is no argument from the Examiner or the Office that the contacting limitations of independent claims 59 or 76 are considered to be inherent and such an argument would be flawed inasmuch as the contacting limitations of claims 59 and 76 do not necessarily flow from the teachings of Walton. Independent claims 59 and 76 individually recite limitations which are not disclosed nor suggested by the prior art and claims 59 and 76 are allowable for at least this reason. Appellant respectfully requests reversal of the anticipation rejection of claims 59, 61, 76 and 78 for at least the above-recited compelling reasons.

J. **The refusal of the Office to initial or address a submitted Form PTO-1449 is not proper.**

Appellant mailed a Supplemental Information Disclosure Statement, the reference cited thereon, and the appropriate fee pursuant to 37 C.F.R. 1.97 to the patent office on October 21, 2002. Appellant received a stamped post card indicating receipt of the IDS and the reference cited on the accompanying form PTO-1449 by the Office. The Office Actions mailed January 2, 2003, July 16, 2003 and February 17, 2004 failed to include the form PTO-1449 with the Examiner's initials thereon indicating consideration of the reference by the Examiner. Appellant included courtesy copies of the IDS with Office Action responses mailed May 2, 2003 and November 17, 2003 and requested therein that the form PTO-1449 be initialed. Appellant has yet to receive the properly initialed form PTO-1449 or a response from the Examiner regarding this issue. Pursuant to MPEP § 609 (8th ed, rev. 2), Appellant respectfully requests that the form be appropriately initialed and a copy of the initialed form be returned to Appellant.

K. **Conclusion.**

In view of the foregoing, reversal of the final rejections of the claims is respectfully requested. For any one of the above-stated reasons, the rejections of the claims should be reversed. In combination, the above-stated reasons overwhelmingly support such reversal. Accordingly, Appellants respectfully request that the Board reverse the rejections of claims 50-52, 54-69, and 71-106.

Respectfully submitted,

Date: 12/16/04

Attorney: _____

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IX. APPENDIX A – THE CLAIMS INVOLVED IN THIS APPEAL.

Claims 1-49 are canceled.

50. [Previously Presented] A wireless communication device comprising:

a housing including an upper surface, a lower surface, and at least one side intermediate the upper surface and the lower surface and having a dimension less than smallest dimensions of the upper surface and the lower surface, and the at least one side surface having visibly perceptible indicia thereon;

communication circuitry within the housing and the communication circuitry being configured to communicate wireless signals comprising microwave signals individually having a frequency in excess of about 900 MHZ; and

wherein the communication circuitry comprises radio frequency identification device circuitry.

51. [Previously Presented] The device according to claim 50 wherein the housing comprises an encapsulant which contacts the communication circuitry.

52. [Previously Presented] The device according to claim 50 wherein the at least one side surface has a dimension less than about 100 mils.

53. Canceled.

54. [Previously Presented] A wireless communication device comprising:

a substrate having a support surface defined by a perimetral edge;

communication circuitry elevationally over the support surface of the substrate and configured to communicate wireless signals comprising microwave signals; and

an encapsulant elevationally over the support surface and configured to encapsulate at least portions of the support surface of the substrate and the communication circuitry, and wherein the encapsulant and the substrate respectively define an upper surface and a lower surface and have a thickness less than a smallest dimension of the perimetral edge, and the encapsulant includes visibly perceptible indicia intermediate the upper surface and the lower surface.

55. [Previously Presented] The device according to claim 54 wherein the support surface comprises a surface substantially in the shape of a rectangle.

56. [Previously Presented] The device according to claim 54 wherein the encapsulant contacts at least portions of the support surface and the communication circuitry.

57. [Previously Presented] The device according to claim 54 wherein the encapsulant and the substrate have a thickness less than about 100 mils.

58. [Previously Presented] The device according to claim 54 wherein the communication circuitry comprises radio frequency identification device circuitry.

59. [Previously Presented] A wireless communication device comprising:

communication circuitry configured to communicate wireless signals; and

an encapsulant configured to encapsulate and contact at least a portion of the communication circuitry, wherein the encapsulant defines at least one side surface and the at least one side surface has visibly perceptible information thereon.

60. [Previously Presented] The device according to claim 59 wherein the at least one side surface of the encapsulant has a thickness less than about 100 mils.

61. [Previously Presented] The device according to claim 59 wherein the communication circuitry comprises radio frequency identification device circuitry.

62. [Previously Presented] A radio frequency identification device comprising:

a housing including an upper surface and a lower surface which define a housing thickness of less than about 100 mils intermediate the lower surface and the upper surface, and the housing has visibly perceptible indicia thereon intermediate the upper surface and the lower surface; and

communication circuitry within the housing and configured to communicate wireless signals comprising microwave signals.

63. [Previously Presented] The device according to claim 62 wherein the housing comprises an encapsulant which contacts at least portions of the support surface and the communication circuitry.

64. [Previously Presented] The device according to claim 62 further comprising an antenna within the housing and coupled with the communication circuitry.

65. [Previously Presented] A radio frequency identification device comprising:

a substrate having a support surface;

radio frequency identification device circuitry elevationally over the support surface and configured to communicate wireless signals comprising microwave signals;

a power source elevationally over the support surface and coupled with the radio frequency identification device circuitry, wherein the power source comprises a battery;

an antenna elevationally over the support surface and coupled with the radio frequency identification device circuitry; and

an encapsulant contacting at least portions of the support surface, the radio frequency identification device circuitry, the power source and the antenna, wherein the encapsulant and the substrate form a housing having an upper surface and a lower surface interconnected by at least one side surface, and the at least one side surface has a dimension less than smallest dimensions of the upper and lower surfaces, and the at least one side surface includes visibly perceptible indica.

66. [Previously Presented] A method of forming a wireless communication device comprising:

providing communication circuitry configured to communicate wireless signals;

providing a housing including an upper surface, a lower surface and at least one side surface about the communication circuitry, the at least one side surface has a

dimension less than smallest dimensions of the upper surface and the lower surface;

providing visibly perceptible indicia on the at least one side surface; and

wherein the providing communication circuitry comprises providing radio frequency identification device circuitry configured to communicate microwave wireless signals.

67. [Previously Presented] The method according to claim 66 wherein the providing the housing comprises encapsulating at least a portion of the communication circuitry with an encapsulant.

68. [Previously Presented] The method according to claim 67 wherein the encapsulating comprises contacting at least the encapsulated portion of the communication circuitry with the encapsulant.

69. [Previously Presented] The method according to claim 66 wherein the at least one side surface has a dimension less than about 100 mils.

70. Canceled.

71. [Previously Presented] A method of forming a wireless communication device comprising:

providing a substrate having a support surface defined by at least one perimetral edge;

providing communication circuitry elevationally over the support surface of the

substrate and configured to communicate wireless signals;

encapsulating at least portions of the support surface of the substrate and the communication circuitry using an encapsulant, the encapsulant and the substrate respectively define an upper surface and a lower surface and have a thickness less than a smallest dimension of the at least one perimetral edge; and

providing visibly perceptible indicia on the encapsulant intermediate the upper surface and the lower surface.

72. [Previously Presented] The method according to claim 71 wherein the providing the substrate comprises providing the substrate having a substantially rectangular shape.

73. [Previously Presented] The method according to claim 71 wherein the encapsulating comprises contacting at least the encapsulated portions of the support surface of the substrate and the communication circuitry with the encapsulant.

74. [Previously Presented] The method according to claim 71 wherein the encapsulant and the substrate have a thickness less than about 100 mils.

75. [Previously Presented] The method according to claim 71 wherein the providing communication circuitry comprises providing radio frequency identification device circuitry.

76. [Previously Presented] A method of forming a wireless communication device comprising:

providing communication circuitry configured to communicate wireless signals;

encapsulating at least a portion of the communication circuitry with an encapsulant which contacts at least the encapsulated portion of the communication circuitry, the encapsulant forming at least one side surface; and

providing visibly perceptible indicia upon the at least one side surface of the encapsulant.

77. [Previously Presented] The method according to claim 76 wherein the at least one side surface of the encapsulant has a dimension less than about 100 mils.

78. [Previously Presented] The method according to claim 76 wherein the providing communication circuitry comprises providing radio frequency identification device circuitry.

79. [Previously Presented] A method of forming a radio frequency identification device comprising:

providing radio frequency identification device circuitry configured to communicate wireless signals comprising microwave signals;

providing a housing including an upper surface, a lower surface, and at least one side surface about the communication circuitry, the at least one side surface having a dimension less than about 100 mils; and

providing visibly perceptible indicia on the at least one side surface.

80. [Previously Presented] The method according to claim 79 wherein the providing the housing comprises providing an encapsulant over at least a portion of a support surface of a substrate.

81. [Previously Presented] The method according to claim 80 wherein the encapsulant contacts at least portions of the support surface and the radio frequency identification device circuitry.

82. [Previously Presented] A method of forming a radio frequency identification device comprising:

providing radio frequency identification device circuitry configured to communicate wireless signals comprising microwave signals;

coupling a power source with the radio frequency identification device circuitry;

coupling an antenna with the radio frequency identification device circuitry;

providing a housing including an upper surface, a lower surface and at least one side surface about at least portions of the radio frequency identification device circuitry, the power source and the antenna, the at least one side surface having a dimension less than smallest dimensions of the upper surface and the lower surface; and

providing visibly perceptible indicia on the at least one side surface.

83. [Previously Presented] The device according to claim 50 wherein the communication circuitry is configured to implement backscatter communications.

84. [Previously Presented] The device according to claim 50 further comprising a battery coupled with the communication circuitry.

85. [Previously Presented] The device according to claim 54 wherein the communication circuitry is configured to implement backscatter communications.

86. [Previously Presented] The device according to claim 54 further comprising a battery coupled with the communication circuitry.

87. [Previously Presented] The device according to claim 59 wherein the communication circuitry is configured to implement backscatter communications.

88. [Previously Presented] The device according to claim 59 further comprising a battery coupled with the communication circuitry.

89. [Previously Presented] The device according to claim 62 wherein the communication circuitry is configured to implement backscatter communications.

90. [Previously Presented] The device according to claim 62 further comprising a battery coupled with the communication circuitry.

91. [Previously Presented] The method according to claim 66 wherein the providing communication circuitry comprises providing backscatter communication circuitry.

92. [Previously Presented] The method according to claim 66 further comprising electrically coupling a battery with the communication circuitry.

93. [Previously Presented] The method according to claim 71 wherein the providing communication circuitry comprises providing backscatter communication circuitry.

94. [Previously Presented] The method according to claim 71 further comprising electrically coupling a battery with the communication circuitry.

95. [Previously Presented] The method according to claim 76 wherein the providing communication circuitry comprises providing backscatter communication circuitry.

96. [Previously Presented] The method according to claim 76 further comprising electrically coupling a battery with the communication circuitry.

97. [Previously Presented] The method according to claim 79 wherein the providing the radio frequency identification device circuitry comprises providing backscatter circuitry.

98. [Previously Presented] The method according to claim 79 further comprising electrically coupling a battery with the radio frequency identification device circuitry.

99. [Previously Presented] A wireless communication device comprising:

a housing including an upper surface, a lower surface, and at least one side intermediate the upper surface and the lower surface and having a dimension less than smallest dimensions of the upper surface and the lower surface, and the at least one side surface having visibly perceptible indicia thereon; and

communication circuitry within the housing and the communication circuitry being configured to communicate wireless signals;

wherein the communication circuitry is configured to implement backscatter communications.

100. [Previously Presented] A method of forming a wireless communication device comprising:

providing communication circuitry configured to communicate wireless signals;

providing a housing including an upper surface, a lower surface and at least one side surface about the communication circuitry, the at least one side surface has a dimension less than smallest dimensions of the upper surface and the lower surface; and

providing visibly perceptible indicia on the at least one side surface;

wherein the providing communication circuitry comprises providing backscatter communication circuitry.

101. [Previously Presented] The device according to claim 50 further comprising a transmit antenna configured to transmit microwave signals and a receive antenna configured to receive microwave signals.

102. [Previously Presented] The device according to claim 51 further comprising:

an antenna coupled with the communication circuitry and configured to communicate the wireless signals; and

a substrate comprising different material than the encapsulant, and wherein the encapsulant and the substrate encapsulate an entirety of the communication circuitry and the antenna.

103. [Previously Presented] The device according to claim 54 wherein the substrate and the encapsulant comprise different materials.

104. [Previously Presented] The device according to claim 54 wherein the substrate and the encapsulant form a solid mass substantially free of any void space.

105. [Previously Presented] The device according to claim 54 further comprising an antenna coupled with the communication circuitry and configured to communicate the wireless signals, and wherein the substrate and the encapsulant encapsulate an entirety of the communication circuitry and the antenna.

106. [Previously Presented] The method according to claim 66 wherein the providing the housing comprises:

providing a substrate;

flowing a flowable encapsulant over the substrate; and

curing the flowable encapsulant into a solid mass substantially free of any void space.

107. [Previously Presented] A method of forming a radio frequency identification device comprising:

providing a substrate;

printing a conductive trace over a surface of the substrate, the conductive trace providing at least one antenna;

supporting backscatter communication circuitry using the substrate;

coupling the backscatter communication circuitry with the at least one antenna in an arrangement wherein the backscatter communication circuitry controls selective shorting of the at least one antenna to selectively reflect a continuous wave signal having a microwave frequency to implement backscatter communications;

supporting a battery using the substrate;

coupling the battery with the backscatter communication circuitry; and

providing an encapsulant over the substrate to form a housing having a thickness no greater than about 100 mils, the providing the encapsulant comprising encapsulating the conductive trace, the backscatter communication circuitry and the battery using the encapsulant and the substrate to form a solid radio frequency identification device substantially free of any void space.